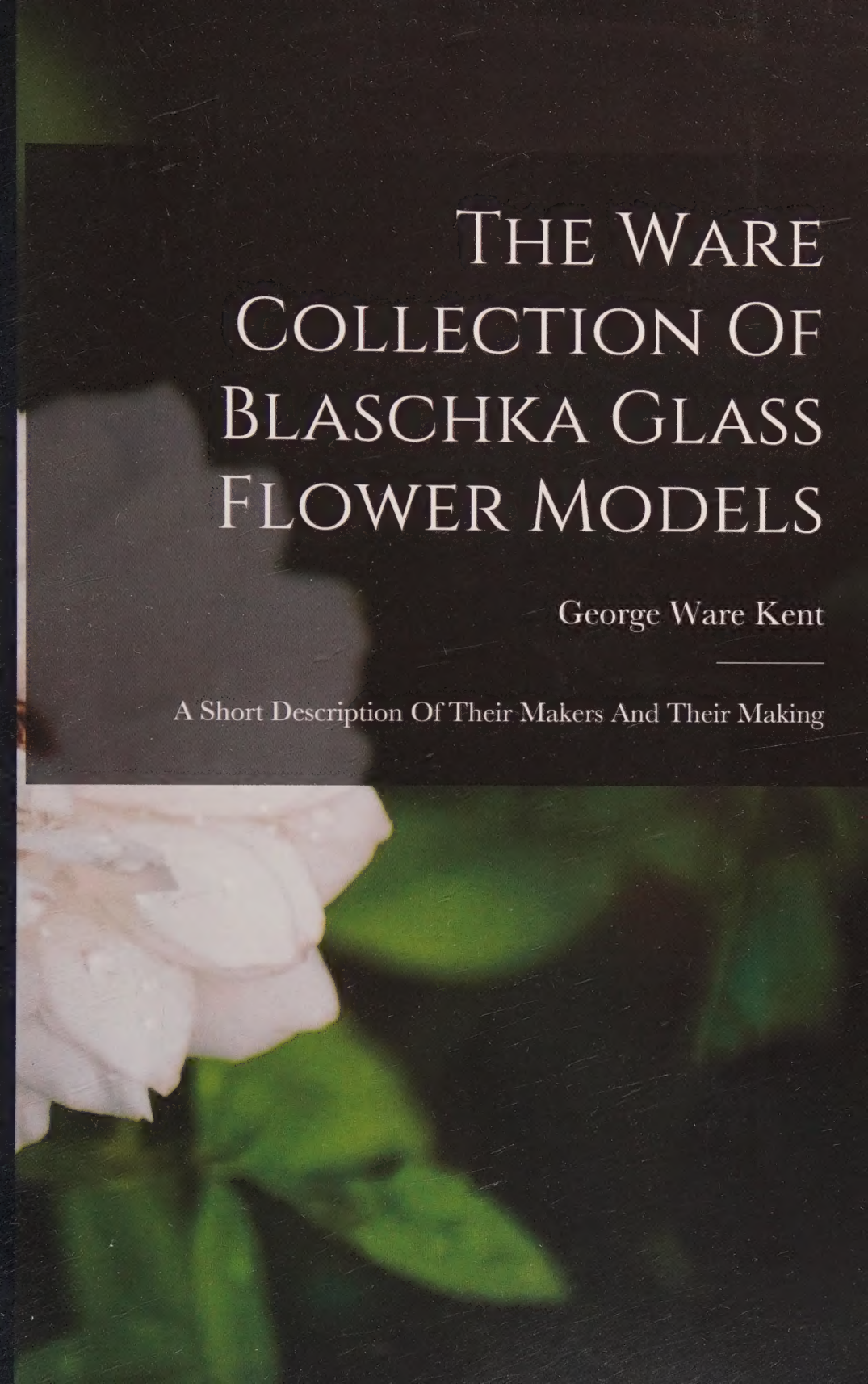

The Ware Collection Of Blaschka Glass Flower Models

George Ware Kent

A Short Description Of Their Makers And Their Making

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Theo. W. Koch

THE UNIVERSITY MUSEUM

THE WARE COLLECTION

OF

BLASCHKA
GLASS FLOWER MODELS

A Short Description Of
Their Makers and Their Making

By
GEORGE H. KENT

CAMBRIDGE
GEORGE H. KENT
UNIVERSITY BOOKSTORE

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PREFACE.

In writing this account of the Ware Collection of Glass Flowers, matter which has appeared in *Appleton's Magazine* and the *Botanical Gazette* has been freely made use of, as also an article which appeared originally in the *Boston Transcript*. A large number of visits to the museum was made, and thanks are due to the attendants in charge for their courtesy in pointing out interesting facts and data, which they show great pleasure in doing to all visitors.

The short description of the flowers is made without any regard to the order in which they are displayed, such description being more for comparison, and to describe the collection as a whole than as a guide. Following this description, a complete list to date of the glass models is given. This list is arranged alphabetically, using the common name of the plant, the botanical name being given also in italics.

The illustrations of the Glass Flower Models are selected to show of what each set of models consists. In the illustration of the *Cacao* only the model of the plant itself is shown. The illustration of the *Plantago* shows the enlarged parts as well as the plant itself. Each set of models comprises life-size copies of the plant itself, and also enlarged copies of different parts of the flower.

This account is not meant as a scientific analysis for the botanical student, but for the average person, whose visit to the glass flowers has awakened an interest in and a wish to remember the beauty and accuracy of this unique collection.

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THE BLASCHKA GLASS FLOWER MODELS.

I.

THE Ware Collection of Glass Flowers in the University Museum at Harvard is the only collection of the kind in the world, for, with the exception of a few fruits in the Botanical Museum at Dresden, a vase of orchids, and a single spray of flowers, made for Mrs. Ware and Miss Ware, there are no other botanical specimens in glass, made by these famous artists, in existence.

The makers of this unique and valuable collection are Leopold Blaschka and Rudolph Blaschka, father and son, and since the death of the father, in 1895, Rudolph Blaschka has been carrying on the work alone, and he is the only person who possesses the secrets necessary for these marvelous productions.

During the lifetime of the elder Blaschka, father and son worked side by side at the same table, and Professor Goodale, who is one of the very few people who have ever seen the process, says that the skill and rapidity with which the work is done is marvelous.

The question is often asked if there is no one else who can make these models or who can at least assist him in his work. When the nature of the work is investigated, it becomes evident that the only answer to this question is a negative one. This is due, not so much to the existence of any one secret connected with the production of the flowers, as to the fact that they are the result of the keenest artistic perceptions, and of absolute scientific accuracy, combined with a wonderful delicacy of manipu-

lation. That the family possesses certain technical secrets is not to be denied; and not only these hereditary secrets, but many new devices of the art have been called into requisition by these two wonder-workers, in whose hands the brittle substance has assumed a plastic character. It is not glass *blowing,* but glass *modeling,* which has produced these marvelous imitations of Nature. Glass of all degrees of fusibility has been used in their composition, and the colors have been subjected to many experiments; some are imparted to the glass while fused, some while cooling, and some are applied afterward. All the pigments used are mineral colors.

Leopold Blaschka was born in Aicha, a village of northern Bohemia, in 1822. His father, Joseph Blaschka, was not only a skilled glass worker, but also an able mechanic and electrician. After attending the grammar school in his native village, Leopold Blaschka studied painting in the studio of the painter, Elsner. He also acquired from his father a thorough knowledge of the goldsmith trade and became expert in cutting and setting gems, and in gold and silver work.

From early childhood he was very much interested in natural history, and in 1853, during a trip to America, which was made in a sailing vessel, he made many studies and drawings of marine invertebrates. After his return home, in 1854, he began making models of these sea animals in glass and produced the first of the glass models of flowering plants.

Blaschka, at this time, made a collection of about sixty orchids in glass for Prince Camille de Rohan. They were exhibited at Prince de Rohan's palace in 1862 and were finally placed in the Natural History Museum at Liège. This building was destroyed by fire in 1863, and the flowers were lost.

From this time, Blaschka devoted himself entirely to the manufacture of animal models. In this work he was assisted by his only son, Rudolf, who was born in 1857, and who became, in 1870, his father's associate in his work. He was the only apprentice whom the elder man initiated into the mysteries of his art, the only person, therefore, since the death of Leopold Blaschka, in 1895, who possesses the secret of these marvelous productions. Both father and son were diligent and careful students of zoölogy, and their accurately rendered models met with a ready sale for museums throughout the world, the most complete of these collections being perhaps that which was purchased by the Harvard Museum of Comparative Zoölogy.

In 1885 the privilege of constructing the central portion of the University Museum at Cambridge was given to the Botanical Department of Harvard, by Mr. Alexander Agassiz, who has carried so far toward completion his father's plans for a Museum of Comparative Zoölogy. With the advice and coöperation of Mr. Agassiz, Prof. George L. Goodale succeeded in obtaining by subscription the money necessary for the construction of the building, and a most satisfactory structure was built, with ample space for laboratories and for exhibition rooms, in which to display illustrations of all the chief types of plants.

Professor Goodale had long been considering in what material plants and their magnified parts could be rendered permanent, without being either conventionalized or exaggerated. Flowers, in all known states of preservation, are apt to lose both color and character and become unsightly and uninteresting.

Professor Goodale, in looking at the glass models of the marine invertebrates in the Zoölogical Museum, thought it might not be impossible to use the same medium for models of flowers. With this end in view,

he visited Dresden solely for the purpose of consulting with the artists.

Professor Goodale had never seen any of the glass flowers made by the Blaschkas. During his first visit to their home at Hosterwirtz, near Dresden, his attention was drawn to a vase of orchids, apparently freshly cut flowers, but which proved to be glass models, made by the elder Blaschka, some twenty years previous, for his wife. Here was a convincing argument in favor of glass models for the Harvard Museum. Professor Goodale experienced some difficulty in inducing the Blaschkas to accede to his request, as they were unwilling to abandon the making of animal models, for which there was an unfailing demand. After much consideration, and strongly influenced by the wishes of the son for further opportunities for carrying on his studies in botany, a science to which he had given much attention, they consented to undertake, on their own terms, the preparation of a certain number of models.

Professor Goodale returned to America, and in the autumn of 1887 the first consignment arrived in Cambridge, badly shattered by careless handling in the New York Custom House. The fragments, however, were sufficient to show the quality of the models and to inspire much enthusiasm. Mrs. Elizabeth C. Ware and her daughter, Miss Mary L. Ware, both liberal benefactors of the Harvard Botanical Department, became very much interested and authorized Professor Goodale to make a contract for a certain number of models. These arrived in good order and gave complete satisfaction. Finally, a contract was made by which the artists agreed to give their entire time for ten years and to furnish an average of one hundred models a year to the Museum of Harvard University.

Since the death of the elder Blaschka, and also owing to the complex nature of some of the models, this num-

ber has been greatly reduced, so that less than thirty sets a year are now received.

Rudolph Blaschka has made two visits to America in search of subjects for models, one in 1892 and one in 1895. It was during his second visit that his father died, and he immediately returned home. Since the death of his father, the younger Blaschka has spent all his time toward the completion of the collection, and Professor Goodale testifies that the later models made by the son alone "exhibit the same delicacy of texture and fidelity throughout which has characterized all of the specimens that have preceded them." The younger Blaschka regards the collection as a memorial to his father, as well as to Dr. Ware, and for that reason has refused to allow any one to share his work, and insists on completing the memorial with his own hand.

It is a hard task to undertake a description of this unique collection. Every visitor will enjoy, in his own particular way, his visit to this wonderful collection, and each in turn will carry away some distinct remembrance of perhaps one, perhaps several, of these perfect models. It is astonishing with what accuracy all the details have been followed, and it seems almost impossible that the mind of man could conceive, and the hand of man be dexterous enough to perform, the work which has here been done, for not even the minutest detail has been neglected or forgotten. The graduation of color, the unfolding leaf, the unopened bud, the hirsute stem, all are perfect; and as the flowers of which they are models grew in our woods and fields, so these flowers grew in the hands of their makers, each separate part complete and perfect in itself, and each separate part in its own proper place, helping to make the complete flower so perfect that not even the microscope can detect any difference between them and the plants of which they are models.

II.

THE scope of the original plan has been very much enlarged, and it seems probable now that all the great types of plant life throughout the world will be illustrated in this collection.

There are already represented over 150 natural orders, 508 genera, and 704 species. By this will be seen that it is not meant to show every species of plant; in most cases 6 or 7 species of an order are given, the aim being to show the characteristics of the genera and the more or less marked variations of the species. At the time of this writing the total number of plant models is 720; the total number of details, sections, magnified parts, etc., are 2,900. These models are indeed the greatest help that has ever been realized for the demonstration and study of the science of botany.

Each subject, as represented, gives not only a life-sized model of the plant itself (in some cases the entire plant, and in others a typical branch), but also magnified details, consisting of a single flower, stamens, anthers, pistils, cross-sections of ovary, seed vessels, and other parts, so that one may examine into the most minute detail, without the aid of a microscope. All these different parts are made with the most wonderful exactness in color and form to the original plant. The closer the study, the more extraordinary seems the fact that the material employed for these models is glass. As in Nature, no two flowers or leaves of a single plant are exactly the same, so in the glass reproduction every minute variation is followed with the greatest fidelity.

A distinguished local botanist made a test of this accuracy by selecting at random a number of specimens from various orders and submitting them to the lens.

"Sixteen species I examined by careful comparison," he tells us, "besides making a more general observation of a large number. I sought faithfully to find some error, something systematically wrong. A fair criticism should disclose whatever faults may exist, but I failed to find such faults. In a specimen cluster from the angelica tree, with its flowers so small that their structure can be seen only with the lens, while many of its buds are so minute as to be indistinguishable to the naked eye, I counted of buds, blossoms, and developing fruit from twenty-five hundred to three thousand. And yet every flower has its five petals and five alternating stamens with long filaments. I sought to find on the under part of the cluster some flowers perhaps less carefully done, as being practically out of sight; but they were all equal in their perfection. Were every specimen in the collection to be inverted, the same accurate work would be seen."

The exhibition rooms are arranged to illustrate plant life in all its relations, from a biological point of view. The models attached with silver wire to white plaster plaques bear labels * giving the names of the plants, as well as other details in regard to them, and are displayed in plate-glass cases.

In one room are shown, — "Plants in relation to soil, water, air, heat, light, electricity, and gravitation."

"Plants in relation to insects and other animals by which plants are benefited."

"Plants in relation to insects and other animals by which plants are injured."

*On the following page is a copy of a label such as is attached to each model.

673. R. Blaschka, 1900.

ERICACEÆ.

KALMIA LATIFOLIA, L.

(Typical form.)

Mountain Laurel. Calico-Bush. American Laurel.

New Brunswick to Florida, west to Ohio and Louisiana. Specimen for model obtained at the Arnold Arboretum, Jamaica Plain, Mass., 1895. May–June.

Here, as an illustration of the last, we find a model of a branch of the white oak *(Quercus alba)*. This represents the end of a branch about two feet long. Here everything is most perfect, — the bark, its color and texture; the stem of the leaf, its shape and jointure with the bough; the leaf itself, its irregular shape and dark green color, and the white gall of "The Sower," several of which are here shown, whitish, irregular balls, just as you have seen them on the trees in the woods. A separate gall is cut open and shows the pupa and imago; everything is natural, and you could hardly believe that this is a glass model if it were not for the card, which says, "Rudolph Blaschka, 1903."

In this room are models of our common pitcher plant, with its thick, waxy leaves and peculiar brown and yellow flower; the trumpet leaf *(Sarracenia flava)*, with its curious leaves and flower; Venus fly-trap *(Dionæa muscipula)*, showing the leaves both open and closed; also a model of the entire plant of our blue flag *(Iris versicola)*, with its moss-like roots, narrow leaves, and long flower stalk, on which are shown the seed vessel, flower buds, and full expanded flower.

Here also is a model of a branch of the honey mesquit *(Prosopis juliflora)*. The specimen from which this model was made was obtained in Arizona, where the fruit of the tree is eaten by the Indian. The model is of the end of a branch about eighteen inches long and shows the group of long narrow leaves and the round pendulous catkins, both in bud and in full flower, with the seeming pollen so thick and heavy that you look to see if any has fallen to the card below.

Another room represents the Department of Economic Botany. There are illustrated plants in their relation to man. Plants used for shelter, clothing, and food, also

drugs, dyes, etc. In this room, perhaps, can be pointed out to the best advantage the great benefit of these models for study.

One of the most complete examples is that of the Indian corn *(Zea mays)*. The glass model shows a stalk of corn about three feet in length, with the long, wavy, margined leaves, the tasseled flowers, and the developed ear, with its wrappings of husk and its delicate plume of silk. The magnified details give a single flower, a stamen, and a grain of maize in its development from the flower. Here are displayed with it dried ears of ripe corn of all sizes and varieties, from the smallest popcorn to the largest highly cultivated product from the market garden. Here also are shown in glass jars articles of commerce prepared from corn: corn meal, hominy, corn oil, and oil cake, starch in various forms, anhydrous sugar and caramel, American and British gum, dextrine, mucilage, and whisky.

Another good example is that of the chocolate tree *(Theobroma cacao)*. The glass model, a section of a branch about two inches in diameter, shows the way the flowers and fruit grow from the old wood, instead of from the young twigs. The flowers are a delicate pink, growing in clusters of from three to six, on threadlike crimson pedicels. A spray of the glossy green leaves is also shown and one of the ripened orange-colored fruits.

Here in glass jars are shown many varieties of the cocoa seeds and chocolate pods preserved in alcohol, also both raw and roasted cocoa from Trinidad, Caracas, Santo Domingo, Ceylon, and other places. Among the commercial products are shown breakfast cocoa, chocolate, and cocoa butter.

The exhibit of the tea plant in this room is most interesting. The glass model is of the end of a forked branch about two feet long, with lanceolate leaves of a dark

green color. A number of blossoms are shown, resembling closely our own apple blossom, with their spreading roundish petals and rather large bunch of yellow stamens. The color of the petals, unlike the pink of the apple blossoms, is almost a pure white. There are also several unopened buds of different stages of growth and a fruit very much like a rose pip in shape and size. Glass models of four or five young shoots, from one to three inches long, are shown. These are our tea of commerce and are of a much lighter green than the full-grown leaves. Enlarged models of the stamen and pistil are given, beside cross-sections of ovary and seed. With these glass models are shown ripe seeds of the tea plant and some twenty specimens of different kinds of tea, among them a specimen of the best Russian tea and a cake of Chinese brick tea. Specimens of the two flowers most commonly used for perfuming certain kinds of tea are also given. Also a printed description of the teas of modern commerce, which is here given in full.

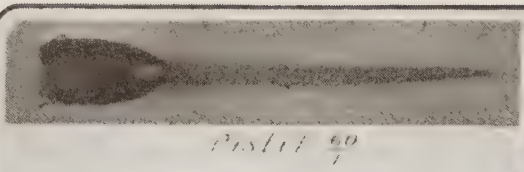
"Thea Sinensis.

"All the teas of modern commerce are derived from plants which belong to a single species, *Thea (Camellia) sinensis,* and its varieties, notably, *Assamica.* When the leaves are quickly dried after picking, they constitute the green teas; but if they are allowed to wilt and blacken (ferment) before drying, they assume a darker color and are collectively known as black teas. During the process of drying or 'firing,' the teas are generally rolled more or less, and thus the drying leaves take on characteristic shapes, sometimes even resembling pellets. After drying, the product is sifted into different grades, usually corresponding to the size and delicacy of the leaves. The finest are termed *Pekoe,* the next finest *Souchong,* and

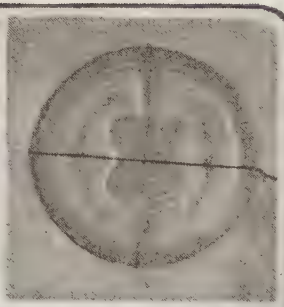
still coarser *Congou,* but these terms are very loosely applied. 'English breakfast tea' (a term not used in England) comprises the different sorts of black teas, with the exception of 'Oolong,' a black tea which possesses a flavor suggesting the green teas.

"Teas are sometimes perfumed (scented) by the use of certain flowers. Through the kind offices of Mr. C. C. Clarke of the Chinese Custom Service, the museum has received authentic specimens of the two plants most commonly used in China for this purpose. The small flowers of chloranthus *(Chu-Lan)* are mixed in very small proportions with the drying tea and are not afterwards separated from it. The large flowers of jasminum *(Mole* or *Mo-Li)* are placed at the bottom of a deep basket which contains the wilting and 'fermenting' leaves, and are afterwards removed, so that they do not appear in the finished product."

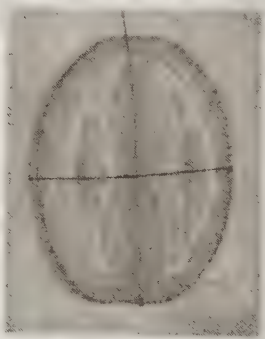
In this room are also models of the tobacco plant, rice, nutmeg, capsicum, clove, cinnamon, coffee, cotton, and a beautiful model of the blue-flowered flax. All of these models give not only examples of the plants and flowers, but magnified details of the separate parts, and in most cases, such as nutmeg, clove, etc., enlarged sections of the pods and seeds.



Pistil $\frac{40}{1}$



Transverse Section of Ovary $\frac{100}{1}$



Longitudinal Section of Ovary $\frac{100}{1}$

Plantago patagonica

Desert-form

Specimen collected at

TEMPE, ARIZONA.

Flower $\frac{40}{1}$

Section of Flower $\frac{40}{1}$

III.

THE largest room, with its overhead gallery, is devoted to flowering plants and a few ferns. In this room the classification is in orders, several species of the same order being shown in juxtaposition. The models in this room are almost entirely of flowering plants, so that here we find great variety of color and form, all so perfect and true to Nature that one can hardly believe they are glass models and not the true flower just brought in from the garden or fields.

Here is a little bunch of hepaticæ which looks as though it was just pulled up from some nearby field, with its little eight or nine petaled blue flowers pushing up on their slender stems, through the bunch of dark green leaves and the fiber-like roots below.

Close by is a complete plant of the marsh marigold, or cowslip, with its bunch of dark green leaves, all growing from one root, on their thick heavy stems, surrounding the cluster of five or six bright yellow flowers. Next we find a branch of the wild colombine *(Aquelegia canadensis),* with its fern-like leaves, several half-grown buds, and a group of three full-grown flowers, with their yellow centers and long red spurs.

The entire plant of the rue anemone *(Anemonella thalictroides)* is shown, the group of tubers, looking like miniature potatoes at the base, the straw-like stems, and the group of green leaves at the top of each stem, the small white flowers, with their six or seven petals and pollen-tipped stamens, and several half-opened buds.

A little clump of bluets, with its tiny star-shaped blossoms, looks as natural as though just gathered from the roadside, its four-petaled bluish-white flowers growing up through the bunch of grass which almost conceals the small spatulate leaves of the plant itself.

As we look further, we find a complete plant of false miterwort *(Tiarella cordifolia)*, with its eight or ten green leaves of different sizes; some six or eight dried brown leaves at the bottom, near the roots; two full-grown flower stalks, with about twenty flowers at the top; two half-grown flower stalks, with unopened buds at different stages of growth. The enlarged parts of this plant are the stamen, enlarged thirty-five times; the pistil, enlarged twenty times, and transverse and longitudinal sections of the ovary enlarged one hundred times.

Near by is a Jack-in-the-pulpit, with its three several leaves and peculiar flower, and down in the corner of one of the glass cases we find a perfect model of a clump of Indian pipe, or ghost plant, the white waxy stems and flowers of which look just as natural as those you have seen growing beneath some tall pine tree in the dark silent woods.

A complete plant of the wood lily is given, the model being about twenty inches long, with bulb, roots, leaves, and flower stalks, with its bell-shaped flowers. Examine now the pickerel weed which we find in the same room with the wood lily, the difference between the inflorescence of these two flowers alone showing the wonderful handicraft of the makers. The plant is given entire, with its root, leaves, and flower stems, surmounted by its bunch of small blue blossoms, each blossom measuring not more than one-quarter inch across, while the breadth of the wood-lily blossom is some two inches. Yet, each small

blossom of the pickerel weed is as perfect and true to Nature as the blossom of the wood lily.

I should like to call attention here to the great skill and adaptability of the makers of these glass models, shown in the making of two plants so dissimilar in form as the thorn apple *(Datura meteloides)*, with its large open bell-like flower extending from the long green calyx, and the American star thistle *(Centaurea americana)*, with its close bundle of petals and stamens. Both plants are shown in this collection, and both plants, though so widely different in character, show the same marvelous truth to Nature which is exhibited in all the work of these famous artisans.

Complete models are shown not only of the plants themselves, but of magnified parts of our common blue violet, the bird's foot violet, buttercup, a complete plant of black-eyed Susan *(Rudbeckia hirta L.)*, a branch of the mountain laurel, with several large bunches of its bright flowers, and the sheep laurel, and sweet pepper bush, all as perfect and natural as we see them in our woods and meadows.

A branch of golden rod *(Solidago)* is shown nearly three feet long, with its panicled crowded raceme of minute yellow flowers. This specimen took nearly three months to complete and is a perfect model of our national flower.

Here we find a full-sized model of a complete plant of the water lily, with its fleshy roots, long slender leaf stem surmounted by the flat green leaf, several small half-grown leaves in various stages of growth, only partially unrolled, the whole completed by several buds and a full-opened flower, with its flat white petals and bright yellow center. Several models of the enlarged stamens

are given, showing the difference in this flower between the inner and outer rows.

The two models of water lilies shown are the work of Rudolph Blaschka alone, made since the death of his father; and as they bear the date of 1906, show some of the latest work of this remarkable man. In comparing this with the earlier work made by both father and son, a model in this same room shows the gorgeous flower of the umbrella tree *(Magnolia umbrella)*. A short branch only is given, with several of the large flat green leaves; from the end of the branch droops the magnificent open cup-shaped flower, with its large waxy white petals, slightly tinged with green. Some of the petals are over four inches in length and one and a half inches wide. This model is among the earliest work of these artists and bears the date of 1888.

In addition to those already mentioned are several specimens of our American cowslip, or shooting stars, pink, purple, and white; a branch of that most common plant, the blue chickory, the bright open flowers, with its single row of petals, lying flat and fully opened to the sun; a branch of the trumpet creeper, with its spray of brownish-yellow trumpet-shaped flowers, and next, a branch of the catalpa tree, or Indian bean, with its large bunch of open cup-shaped pink and white flowers, with the yellow pollen-lined interior, all so natural that you almost expect to see a plump and busy, black-and-yellow bumblebee backing out from one of the blossoms, where he has been for the drop of nectar at the bottom of the gaily colored cup.

Everything is so perfect and natural in regard to the beauty of all the blossoms here that one can hardly believe but what he shall also find the sweetness and fragrance of the natural flowers.

Several models of the trailing branches of the passion flower are shown; the small white *Passiflora gracilis,* with its curling branches and small star-shaped flowers, growing out from along the stem; the somewhat larger crimson *Passiflora murucuja,* the scarlet *Passiflora racemosa;* the purple and white laurel-leaved passion flower *Passiflora laurefolia,* and the more common white passion flower *Passiflora cærulea,* the last with its circle of purple and white petals projecting like colored needles from the center of the flower.

The models of the cannas, with their red and yellow flower-tipped branches, look most natural, although the blossoms are not so large as on our cultivated plants.

The model of the dahlia tennis, a native plant of Mexico, shows to what perfection the plant can be brought by careful selection and cultivation, when we compare it with our own garden dahlia. The model here is of a complete plant, nearly three feet high, and includes the roots and bulbs, of which there are five, each between two and three inches long. It shows the growth of the thick woody straight stem, with its lateral branches and widespread leaves, the flower stems growing out from the axil of the leaves and surmounted by the flat open flower, with its double row of sepals and bunch of yellow petals and stamens in the center. This model shows also several unopened buds and three or four dried flowers in different stages of decay.

There are also models of the branches of a number of our trees, showing the growth of the leaves and flowers. Several of our maples, the pitch pine *(Pinus rigida),* common juniper *(Juniper communis),* are exhibited. A fine model of the common yew *(Taxes canadensis)* is displayed, showing a branch about two feet long, with

the graduation of color through the different shades of green, from the dark color of the older leaves through the younger growth and lighter color, to the very light green of the unopened leaves at the tips of the branches. All these wonderful changes and variation of Nature are shown with a truth and accuracy that is most wonderful.

Another smaller branch of the common yew shows the flowers and wax-like red fruit. There are also models of the magnified flower and section of both flower and fruit.

It would be impossible to enumerate in this little book all the plants of which models are shown here: sprays of larkspur, monkshood, harebells, lavender, lychnis, mallow, marigold, myosotis, nicotiana, poppy, phlox, calendula, cardinal flower, are here shown in all their beauty; long streamers of tropæolum, convolvulus, honeysuckle, and virgin's bower, with their green leaves, tendrils, and bright flowers; clumps of oxalis, liverwort, meadow-sweet, and trillium, modeled from the complete plant, showing root, leaf, and flower.

The models of the orchid family are extremely interesting, the vividness of their coloring and their fantastic shapes making them particularly attractive. Most of the orchids come from more tropical countries. A large number of the models here are of specimen plants from Brazil and Mexico, but among them are our own well-known moccasin flower, both pink and yellow; the smaller purple-fringed orchid; the tuberous-rooted calopogon, and the rose pogonia, all New England orchids. They are all most perfect indeed, both as regards color and form.

Specimens of the more fantastic orchids are also illustrated, such as *Stanhopea oculata* and *Stanhopea tigrina.* These, with their curious shapes and peculiar

GLASS MODEL OF CACAO

colors, resemble more the animal than the vegetable kingdom. A model of the *Oncidium tigrinum* represents the curious growth of these peculiar flowers. The model is some two feet long, giving the entire plant; the long somewhat egg-shaped bulbs, with their group of roots, the several flag-like leaves ascending from the top of each bulb, and the long flower stem, growing, as it does, from the base of the bulb. The flower stem is branched, throwing off four separate branches, each branch producing from four to six of the small butterfly-shaped flowers, with their peculiar spotted corola and yellow wing-shaped inner leaves or petals.

Perhaps the most curious forms of plant life modeled here are the cacti. Flowering branches of a number are here given, such as the Commanche cactus *(Opuntia camanchica),* and also several complete plants of the smaller varieties, including *Echinocactus wislizeni* and *Echinocereus eangchinarium,* both of which are shown in flower. The last named is about five inches high and nearly four inches in diameter; of pyramidal shape; color, a greenish gray, and covered with needle-like spines of a lighter shade, in circular groups, the pinkish flower, some two inches in length, extending directly from the body of the plant near the top.

In the gallery of this room quite a number of the more common ferns are represented, among them the *adiantum,* showing in its magnified details the entire process of reproduction, from the tiny spores to the young fern, with developed rootlets and frond.

In one of the smaller cases in the gallery is shown the different methods of illustrating flowering plants. A glass model of the whole plant of the wild orange-red lily *(Lilium philadelphium)* is here given. Beginning

at the complex bulb at the base, with the slim stem extending from it about two feet in length, it shows the small narrow leaves surrounding the stem in groups at stated intervals, surmounted by its open bell-shaped dark orange colored and spotted blossom. A printed notice, which reads as follows, is laid in this case:

"For the benefit of those who are interested in the subject of museum illustration, the present case has been arranged to contain contrasted specimens. They are: (1) the dried plant; (2) black and white drawings of the species; (3) tinted drawings; (4) colored illustrations; (5) one of Blaschka's models. The glass model is a duplicate of the illustration in the case of Lilaceæ down stairs. The difference between the two specimens is worthy of notice, both of them representing the same species, but made from different specimens. This specimen has been merely laid on one of the plaster plaques. The plaques are smooth plates of plaster of paris prepared after an ingenious method devised by Dr. Henry F. Libby of Boston. Where the specimens are to be shown upon an incline, they are fastened to the plaque by means of silver wire. All of the wiring in this installation has been done by Mr. John Waugh of Cambridge. So far as has been observed, the inclined plaques have not curved at all in any case."

Harvard University may well be proud of having secured so unique a collection and so valuable an acquisition to their means of imparting knowledge.

Photographs of the two artists, Leopold and Rudolph Blaschka, father and son, and also a photograph of the house at Hosterwitz where the work has been done, are shown in a glass case in the main exhibition room. One end of a glass case in this room is given up to show the extreme care used in packing these delicate models for

their long journey from Hosterwitz to Cambridge. Models of three different specimens are shown in their cardboard boxes, and the following explanation is given:

"*Method for Preparing the Models for Transportation.*

"All of the glass models, without exception, are constructed in the studio at Hosterwitz, near Dresden. When the models are ready for shipment, each model is fastened securely to a plate of firm cardboard and placed in a strong cardboard box. Every pendent part of the model is kept from shaking by means of a roll of crushed tissue paper, which holds it in place. The cardboard boxes are packed with great care in a pine-wood box of convenient size, with plenty of straw between them. Over the whole box is now wrapped a bale of straw, and covered with burlap, forming a very elastic bundle, which can bear a very heavy shock. Such bundles arrive in Cambridge, after the ocean voyage, with practically no parts broken. After the boxes have been opened in the museum by the custom-house inspector, the models are removed from the cardboard supports to plaster-plaques. The plaster-plaques are strong plates of plaster of paris made after a method invented by Dr. H. F. Libby of Boston. Each model is then placed in its proper case, with suitable label. Most of the critical determinations of the species have been made by Dr. Jesse M. Greenman of Chicago, formerly of the Gray Herbarium. Up to the present time, none of the models have appeared to undergo any marked change upon exposure to the light and air of the exhibition cases."

This collection was formally presented to Harvard on April 17, 1893, by Professor Goodale, speaking for Mrs. and Miss Ware, and was accepted by President Eliot for the University.

Considered as a memorial, these glass models are worthy of the life they commemorate. A bronze tablet on the wall bears the following inscription:

MDCCCXIV MDCCCLXXXVII
IN MEMORIAM
CAROLI ELIOT WARE
MEDICI
HVIVS VNIVERSITATIS ALVMNI
HASCE IMAGINES
DONAVERVNT
CONIVX ET FILIA SVPERSTITES
RVRA FLORES AMICOS EX ANIMO COLVIT
VALDEQVE DILEXIT*

* "1814-1887. In memory of Dr. Charles Eliot Ware, a graduate of this University, these models have been given by his wife and daughter, who survive him. He cherished and loved with all his heart the country and flowers and his friends."

Mau

BOTANICAL SECTION OF UNIVERSITY MUSEUM

A LIST OF THE GLASS MODELS.

In the exhibition of these models the species are arranged in the sequence adopted by Engler in his Pflanzenfamilien: the highest "Compositæ" are placed in the right-hand case at the south side of the main room, the lowest in the table-case at the extreme left, on the opposite side of the room.

Abronia
Abronia maritima
Acajou
Anacardium occidentale
Aconite saxifrage
Boykinia aconitifolia
Actinella
Actinella scaposa
Cone-fruited acanthostachys
Acanthostachys strobilacea
Adam's Needle
Yucca filamentosa
Adiantum cuneatum
Adiantum cuneatum
Adiantum hispidulum
Adiantum hispidulum
Adiantum trapeziforme
Adiantum trapeziforme
Agave morrisii
Agave morrisii
Small-flowered Agrimony
Agrimonia parviflora
Black Alder
Ilex verticillate
White Alder
Clethra alnifolia
Alonsoa warscewiczll
Alonsoa warscewiczll
Allamanda schottii
Allamanda schottii
Alligator pear
Allium gratissima
Allium scaposum
Allium scaposum
Allium serratum
Allium serratum
American ivy
Ampelopsis quinquefolia
Amsinckia intermedia
Amsinckia intermedia
Amsonia tabernaemontana
Amsonia tabernaemontana
Anchovy pear
Grias cauliflora
Andromeda floribunda
Andromeda floribunda
Showy Andromeda
Andromeda speciosa
Anemopsis
Anemopsis californica
Angelica-tree
Aralia spinosa
Angels' Trumpet
Datura arborea
Anoda lavaterioides
Anoda lavaterioides
Arceuthobium robustum
Arceuthobium robustum
Aristolochia
Aristolochia elegans

Arrow-grass
Triglochin maritima
Arrow-leaf
Sagittaria montevidensis
Aspidium filix-mas
Aspidium filix-mas
Asplenium alatum
Asplenium alatum
Aster umbellatus
Aster umbellatus
New England Aster
Aster novae-angliae
White-topped Aster
Seriocarpus conyzoides
Large-leaved Aster
Aster macrophyllus
Audibertia stachyoides
Audibertia stachyoides
Smooth Azalia
Rhododendron arborescens
White Azalia
Rhododendron viscosum
Balmony
Chelone glabra
Banana
Musa rosacea
Banana
Musa sapientum
White baneberry
Actaea alba
Baeria gracilis
Baeria gracilis
Baileya pauciradiata
Baileya pauciradiata
Wild Bachelor's Button
Polygala lutea
Beard-tongue
Pentstemon glandulosus
Beard-tongue
Pentstemon barbatus
Beard-tongue
Pentstemon centranthifolius
Beard-tongue
Pentstemon spectabilis
Marsh Bedstraw
Galium palustre
Beet
Beta vulgaris
Begonia boliviensis
Begonia boliviensis
Begonia gracilis
Begonia gracilis
Beloperone californica
Beloperone californica
Holly Berberry
Berberis aquifolium
Wild Bergamot
Monarda fistulosa
Biennial gaura
Gaura biennis
Bifrenaria harrisoniae
Bifrenaria harrisoniae
Bind-weed
Convolvulus occidentalis
Biscutella wislizeni
Biscutella wislizeni
Black Alder
Ilex verticillata
Black-eyed Susan
Rudbeckia hirta
Black-Bean
Mucuna gigantea
Black Snakeroot
Cimicifuga racemosa
Bladderwort
Utricularia vulgaris
Purple Bladderwort
Utricularia purpurea
American Bladderwort-nut
Staphylea trifolia
Blazing-star
Liatris spicata
Bloodroot
Sanguinaria canadensis
Blechnum occidentale
Blechnum occidentale
Bluets
Houstonia caerulea

Blue Bells of Scotland
Campanula rotundifolia
Swamp Blueberry
Vaccinium corymbosum
Blue-eyes
Nemophilia insignis
Blue Sage
Salvia patens
Boltonia asteroides
Boltonia asteroides
Bougainvillaea spectabilis
Bougainvillaea spectabilis
Bouvardia longiflora
Bouvardia longiflora
Bouvardia triphylla
Bouvardia triphylla
Common Brake
Pteris aquilina
Brassia verrucosa
Brassia verrucosa
Broom-rope
Orobanche ramosa
Brodiaea
Brodlaea capitata
Bromelia pinguin
Bromelia pinguin
Brunfelsia
Brunfelsia violacea
Brunfelsia americana
Brunfelsia americana
Scarlet-flowered Brownea
Brownea rosa-de-monte
Browallia viscosa
Browallia viscosa
Bryophyllum calycinum
Bryophyllum calycinum
Bunch-berry
Cornus canadensis
Burr-reed
Sparganium eurycarpum
Bursera gummifera
Bursera gummifera
Canadian Burnet
Poterium canadense
Tall Buttercup
Ranunculus acris
Figwort Buttercup
Ranunculus ficaria
Butterfly-plant
Oncidium papilio
Cacao
Theobroma cacao
Caesalpinia
Caesalpinia pulcherrima
Cajanus
Cajanus indicus
Large-flowered Calandrinia
Calandrinia grandiflora
Calf's Head
Darlingtonia californica
Calochortus flavus
Calochortus flavus
Sainty Calochortus
Calochortus splendens
Tuberous-rooted Calopogon
Calopogon pulchellus
Calotropis
Calotropis procera
Camassia fraseri
Camassia fraseri
Camphor Tree
Camphora officinarum
Cane
Arundinaria macrosperma
Canna carnea
Canna carnea
Canna flaccida
Canna flaccida
Cardinal-flower
Lobelia cardinalis
Blue Cardinal-flower
Lobelia syphilitica
Carludovica palmata
Carludovica palmata
Catalpa longissima
Catalpa longissima
Catasetum luridum
Catasetum luridum

Amethyst-Cattleya
Cattleya intermedia
Cat o' nine tails
Typha latifolia
Curled-petaled Cattleya
Laelia crispa
Spotted Cattleya
Cattleya guttata
Yellow Cattleya
Cattleya forbesii
Cassia grandulosa
Cassia grandulosa
Cassia siamea
Cassia siamea
Castilleia integra
Castilleia integra
Casuarina
Casuarina stricta
Cayenne pepper
Capsicum frutescens
Jamaica Cedar
Cedrela odorata
Cedronella mexicana
Cedronella mexicana
Centaury Canchalagua
Erythraea venusta
Cephalophora
Cephalophora aromatica
Cephalotaxus
Cephalotaxus drupacea
Cephalotaxus
Cephalotaxus pendunculata
Cereus caerulescens
Cereus caerulescens
Cestrum
Cestrum aurantiacum
Cestrum
Cestrum elegans
Cestrum
Cestrum nocturnum
Chaenactis stevioides
Chaenactis stevioides
Chaenactis tenuifolia
Chaenactis tenuifolia
Chamaedorea elegans
Chamaedorea elegans
Checkerberry
Gaultheria procumbens
Cherry
Prunus ilicifolia
Wild Black Cherry
Prunus serotina
European Chestnut
Castanea sativa
Small-flowered Horse-chestnut
Aesculus parviflora
Chiccory
Cichorium intybus
Choisya ternata
Choisya ternata
Chrysophyllum cainito
Chrysophyllum cainito
Golden-flowered Chysis
Chysis aurea
Chysis limminghii
Chysis limminghii
Cinnamon Tree
Cinnamomum zeylanicum
Shrubby Cinque-foil
Potentilla fruticosa
Clarkia elegans
Clarkia elegans
Clarkia pulchella
Clarkia pulchella
Cleome
Gynandropsis speciosa
Marsh Clematis
Clematis crispa
Scarlet Clematis
Clematis coccinea
Clidemia rubra
Clidemia rubra
Clove-plant
Eugenia caryophyllata
Cochineal-plant
Nopalea coccinellifera
Cocklebur
Xanthium spinosum

Cocos australis
Cocos australis
Cocoa-nut
Cocos camosa
Cocoa-nut Palm
Cocos nucifera
Cocoa Plum
Chrysobalanus Icaco
Codiaeum
Croton lucidus
Coffee
Coffea arabica
Coffee Tree
Coffee liberica
Cola Nut
Cola acuminata
Collinsia
Collinsia bicolor
Collinsia grandiflora
Collinsia grandiflora
Wild Columbine
Aquilegia canadensis
Columnea schiedeana
Columnea schiedeana
Cotyledon orbiculata
Cotyledon orbiculata
Collinsia
Collinsia corymbosa
Cone-flower
Rudbeckia speciosa
Purple Cone-flower
Echinacea purpurea
Coreopsis tinctoria
Coreopsis tinctoria
Rough-leaved Cordia
Cordia sebestena
Indian Corn
Zea mays
Golden Corydalis
Corydalis aurea
Cosmos
Cosmos bipinnatus
Cosmos diversifolius
Cosmos diversifolius
Dwarf Cornell
Cornus canadensis
Cotton
Gossypium barbadense
Nanking Cotton
Gossypium herbaceum
Cotyledon
Cotyledon lanceolata
Cowslip
Caltha palustris
American Cowslip
Dodecatheon meadia
Cow-parsnip
Heracleum lanatum
Cow-wheat
Melampyrum americanum
Large Cranberry
Vaccinium macrocarpon
Creosote-plant
Larrea mexicana
Cream Cup
Platystemon californicus
Croton californicus
Croton californicus
Cuckoo Flower
Cardamine pratensis
Star-cucumber
Sicyos angulatus
Culver's-root
Veronica virginica
Cuphea bustamanta
Cuphea bustamanta
Lance-leaved Cuphea
Cuphea lanceolata
Cup-plant
Silphium perfoliatum
Currant
Ribes sanguineum
Wild Black Currant
Ribes americanum
Straw-colored Cyperus
Cyperus strigosus
Cyphomandra fragrans
Cyphomandra fragrans

Bearded Day-flower
Commelina erecta
Dahlia
Dahlia variabilis
Dahlia tenuis
Dahlia tenuis
Dalea californica
Dalea californica
Dalea emoryi
Dalea emoryi
Dalechampia roezliana
Dalechampia roezliana
Dalibarda
Dalibarda repens
Dendromecon
Dendromecon rigidum
Dew-Plant
Drosera rotundifolia
Diapensia
Diapensia lapponica
Dicentra formosa
Dicentra formosa
Dichorisandra
Dichorisandra aubletiana
Dogwood
Cornus californica
Downingia pulchella
Downingia pulchella
False Dragon-head
Physostegia virginiana
Duckweed
Lemna minor
Dulichium
Dulichium spathaceum
Duranto
Duranto plumieri
Eccremocarpus
Eccremocarpus scaber
Echinocereus engelmanni
Echinocereus engelmanni
Echinocactus
Echinocactus wislizeni
Eel-grass
Vallisneria spiralis
American Elm
Ulmus americana
Encelia
Encelia californica
Encelia farinosa
Encelia farinosa
Encelia eriocephala
Encelia eriocephala
Ephedra
Ephedra nevadensis
Purple-flowered Epidendrum
Epidendrum cochlealum
Ray-flowered Epidendrum
Epidendrum radiatum
Large Epipactis
Epipactis royleana
Eriodictyon
Eriodictyon tomentosum
Eriophyllum confertiflorum
Eriophyllum confertiflorum
Erythroxylum coca
Erythroxylum coca
Eucharis
Eucharis grandiflora
Eupatorium astrorubens
Eupatorium astrorubens
Fabiana imbricata
Fabiana imbricata
False indigo
Amorpha fruticosa
Sensitive Fern
Onoclea sensibilis
Fever-wort
Triosteum perfoliatum
California Fuchsia
Zauschneria californica
Fig
Ficus carica
Figwort
Scrophularia californica
Blue Flag
Iris versicolor
Flax
Linum usitatissimum

Wild Toad Flax
Linaria canadensis
Fleabane
Erigeron speciosus
Fleabane
Erigeron grandulosus
Daisy Fleabane
Erigeron strigosus
Small Fleabane
Aster undulatus
Floating Heart
Limnanthemum lacunosum
Flos Tigridis
Tigridia pringlei
Fothergilla gardeni
Fothergilla gardeni
Four o'clock
Mirabilis jalapa
Long-flowered Four o'clock
Mirabilis longiflora
Francoa
Francoa sonchifolia
Fringe-flower
Schizanthus pinnatus
Fringe-tree
Chionanthus virginica
Fritillary
Fritillaria parviflora
Fritillary
Fritillaria recurva
Frost-weed
Helianthemum canadense
Great-flowered Gaillardia
Gaillardia aristata
Gama Grass
Tripsacum dactyloides
Closed Gentian
Gentiana andrewsii
Geonoma verschaffelti
Geonoma verschaffelti
Geranium
Geranium
American Germander
Teucrium canadense
Gilia
Gilia tricolor
Gilia californica
Gilia californica
Gilia coccinea
Gilia coccinea
Gilia floccosa
Gilia floccosa
Ginko
Gingko biloba
Glade Mallow
Sida napaea
Ruddy Godetia
Godetia amoena
Golden Rod
Solidago canadensis
Golden Vine
Stigmaphyllon ciliatum
Gomesa foliosa
Gomesa foliosa
Gongora galeata
Gongora galeata
Sweet-scented Gongora
Gongora odoratissima
Gonolobus
Gonolobus carolinensis
Gooseberry
Ribes menziesii
Grease-wood
Audibertia polystachya
American Gromwell
Lithospermum latifolium
Ground Nut
Apios tuberosa
Prairie Ground-cherry
Physalis lanceolata
Guaiacum
Guaiacum officinale
Strawberry Guava
Psidium cattleianum
Gymnogramme calomelanos
Gymnogramme calomelanos
Gymnogramme rufa
Gymnogramme rufa

Wild Hazel-nut
Corylus americana
Heathberry
Empetrum nigrum
Hedge Bindweed
Convolvulus sepium
Hemizonia tenella
Hemizonia tenella
Hibbertia volubilis
Hibbertia volubilis
Sickle-fruited Hoffmanseggia
Hoffmanseggia stricta
Holly
Ilex opaca
Honey Mesquit
Prosopis juliflora
Bush Honeysuckle
Diervilla sessilifolia
Swamp Honeysuckle
Rhodendron viscosum
Trumpet Honeysuckle
Lonicera sempervirens
Hop-tree
Ptelea trifoliata
Horse-radish Tree
Moringa pterygospermum
Hosackia glabia
Hosackia glabia
Hosackia oblongifolia
Hosackia oblongifolia
Fumatory-leaved Hunnemannia
Hunnemannia fumarlaefolia
Wild Hyacinth
Camassia fraseri
Water Hyacinth
Eichhornia azurea
Downy Hydrangea
Hydrangea radiata
Ice-plant
Mesembryanthemum aequilaterale
False Indigo
Amorpha fruticosa
Indian Bean
Catalpa bignonioides
Indian Physic
Gillenia trifoliate
Indian Pipe
Monotropa uniflora
Ipomopsis
Gilia aggregata
Scarlet Ipomoea
Ipomoea coccinea
Iron-weed
Vernonia noveboracensis
Isomeris arborea
Isomeris arborea
Jacaranda
Jacaranda filicifolia
Jack-in-the-pulpit
Arisaema triphyllum
Jamaica cedar
Cedrela odorata
Jasminum sambac
Jasminum sambac
Jatropha
Jatropha divaricata
Jatropha
Cnidoscolus stimulosus
Judas-tree
Cercis canadensis
Northwestern Juneberry
Amelanchier alnifolia
Common Juniper
Juniperus communis
Ketma Hibiscus
Hibiscus clypeatus
Ketma Hibiscus
Hibiscus clypeatus
Krigia virginica
Krigia virginica
Labrador Tea
Ledum latifolium
Hairy Lady's Slipper
Cypripedium villosom
Showy Lady's Slipper
Cypripedium spectabile

Yellow Lady's Slipper
Cypripedium pubescens
Lady Tankerville's Bletia
Phajus grandifolius
Rose-colored Lapageria
Lapageria rosea
Larkspur
Delphinium decorum
Blue Larkspur
Delphinium azureum
Lathyrus
Lathyrus polymorphus
Lathyrus splendens
Lathyrus splendens
Mountain Laurel
Kalmia latifolia
Layia
Layia platyglossa
Leather-leaf
Cassandra calyculata
Wild Leek
Allium tricoccum
Blue Lettuce
Lactuca macrophylla
Leucrinum
Leucocrinum montanum
Linden
Tilia alba
Lindheimer
Lindheimera texana
Wild Yellow Lily
Lilium canadense
American Swamp Lily
Saururus cernuus
Noble Liverwort
Hepatica triloba
Loasa tricolor
Loasa tricolor
Red Loasa
Loasal lateritia
Loasa vulcanica
Loasa vulcanica
Lobelia laxiflora
Lobelia laxiflora
Stemless Loco-weed
Oxytropis lamberti
Locust
Robinia pseudacacia
Logwood Tree
Haematoxylon campechianum
Lopezia mexicana
Lopezia mexicana
Loranthus
Loranthus pauciflorus
Love-in-a-mist
Nigella damascena
Changeable-colored Lupine
Lupinus mutabilis
Dense-flowered Lupine
Lupinus densiflorus
Dwarf Lupine
Lupinus nanus
Lungwort
Mertensia virginica
Evening Lychnis
Lychnis alba
Cucumber magnolia
Magnolia acuminata
Maidenhair Fern
Adiantum macrophyllum
Malacothrix glabrata
Malacothrix glabrata
May-apple
Podophyllum peltatum
Mango
Mangifera indica
Glabrous maple
Acer glabrum
Red maple
Acer rubrum
Marigold
Tagetes palula
Larger Bur-marigold
Bidens chrysanthemoides
Marsh-flower
Limmanthes douglash
Tufted Marshallia
Marshallia caespitosa

Marsh Grass-of-parnassus
Parnassia palustris
Matrimony Vine
Lycium vulgare
Maurandia scandens
Maurandia scandens
Blood-stained Maxillaria
Lycaste skinneri
Tree fern Maxillare
Zygopetalum maxillare
Maxillaria variabilis
Maxillaria variabilis
Mayflower
Epigaea repens
Tall Meadow-Rue
Thalictrum polygamum
Mentzelia lindleyi
Mentzelia lindleyi
Mentzelia tricuspis
Mentzelia tricuspis
Mermaid-weed
Proserpinaca palustris
Milk-Vetch
Astragalus canadensis
Drummond's Milk-Vetch
Astragalus drummondii
Milkweed
Asclepias curassavica
Swamp Milkweed
Asclepias incarnata
Milkweed
Asclepias syriaca
Oblong-leaved Milkweed
Asclepiodora viridis
Pink Milkwort
Polygala incarnata
Snow-white Milla
Milla biflora
Miltonia regnellii
Miltonia regnellii
Miltonia spectabilis
Miltonia spectabilis
Miltonia vexillaria
Miltonia vexillaria
Mimusops
Mimusops elengi
Missouri Currant
Ribis aureum
False mitrewort
Tiarella cordifolia
Bradbury's monarda
Monarda bradburiana
Monarda didyma
Monarda didyma
Monkey-flower
Mimulus puniceus
Monkshood
Aconitum columbianum
Canada Moonseed
Menispermum canadense
Moosewood
Dirca palustris
Ivy-leaved Morning Glory
Ipomoea hederacea
Moss campion
Silene acaulis
Mountain Ebony
Bauhinia aurita
Mountain Heath
Bryanthus taxifolius
Mountain Laurel
Kalmia latifolia
Mouricou
Erythrina corallodendron
Mullein
Verbascum thapsus
Musk-plant
Mimulus cardinalis
Naegelia fulgida
Naegelia fulgida
Nama demissum
Nama demissum
Nasturtium
Tropaeolum tricolorum
Nasturtium
Tropaeolum minus
Nemastylis coelestina
Nemastylis coelestina

Nemophilia
Nemophilia insignis
Spotted Nemophilia
Nemophilia maculata
Jew-Jersey Tea
Ceanothus americanus
Nicotiana acutiflora
Nicotiana acutiflora
Nierembergia calycina
Nierembergia calycina
Enchanter's Nightshade
Circaea lutetiana
Melon-leaved Nightshade
Solanum heterodoxum
Nothoscordum fragrans
Nothoscordum fragrans
Nut Meg-plant
Myristica fragrans
White oak
Quercus alba
Ross' Odontoglossum
Odontoglossum rossii
Odontoglossum wallissii
Odontoglossum wallissii
Œnothera muricata
Aenothera muricata
Alexandra's Odontoglossum
Odontoglossum crispum
Olive Bark-tree
Terminalia catappa
Tiger-striped Oncidium
Oncidium tigrinum
Oncidium papilio
Oncidium papilio
Opuntia emoryi
Opuntia emoryi
Orange
Citrus aurantium
Orange-root
Hydrastis canadensis
Smaller purple-fringed Orchis
Habenaria psycodes
Yellow-fringed Orchis
Habenaria citiaris
Ox-eye
Heliopsis-laevis
Oxybaphus chilensis
Oxybaphus chilensis
Painted Cup
Castilleia affinis
Painted Cup
Castilleia indivisa
Downy Painted Cup
Castilleia sessiliflora
Palo Verde
Parkinsonia torreyana
Papaw-tree
Carica papaya
Golden Meadow-Parsnip
Thapsium aureum
Parkinsonia aculeata
Parkinsonia aculeata
Passion Flower
Passiflora murucuja
Common Passion Flower
Passiflora coerulea
Laurel-leaved Passion Flower
Passiflora laurifolia
Slender Passion Flower
Passiflora gracilis
Pasque-flower
Anemone patens
Common pea
Lathyrus magellanicus
Pearly Everlasting
Anaphalis margaritacea
Water Pennywort
Hydrocolyle americana
Pentstemon antirrhinoides
Pentstemon antirrhinoides
Peperomia argyraea
Peperomia argyraea
Pepino de Comer
Cyclanthera pedata
Cayenne Pepper
Capsicum frutescens
Pepper Tree
Schinus molle

Perezia nana
Perezia nana
Petraea volubilis
Petraea volubilis
Phacelia
Phacelia viscida
Phlox
Phlox ovata
Phyllanthus distichus
Phyllanthus distichus
Phyllocactus phyllanthoides
Phyllocactus phyllanthoides
Phyllanthus speciosus
Phyllanthus speciosus
Pickeringia montana
Pickeringia montana
Pimpernel
Anagallis arvensis
Prince's Pine
Chimaphila umbellata
Pine Apple
Ananas sativus
Pinesap
Monotropa hypopitys
Mariland Pink-root
Spigelia marilandica
Seven-angled Pipewort
Eriocaulon septangulare
Pitch Pine
Pinus rigida
Pitcher-plant
Sarracenia purpurea
Malayan Pitcher-plant
Nepenthes curtisii
Malayan Pitcher-plant
Nepenthes sanguinea
Pithecolobium saman
Pithecolobium saman
Plane-tree of the Orient
Platanus orientalis
Plantago patagonica
Plantago patagonica
Water-Plantain
Alisma plantago
Plumeria alba
Plumeria alba
Platystigma lineare
Platystigma lineare
Podocarpus
Podocarpus chinensis
Pokeweed
Phytolacca decandra
Polemonium pauciflorum
Polemonium pauciflorum
Polemonium Van Bruntliae
Polemonium van bruntliae
Polypodium aureum
Polypodium aureum
Polypodium crassifolium
Polypodium crassifolium
Polypodium vulgare
Polypodium vulgare
Pomegranate
Punica granatum
Pickerel-weed
Pontederia cordata
California Poppy
Eschscholtzia californica
Prickly Poppy
Argemone mexicana
Yellow Poppy
Stylophorum diphyllum
Portlandia grandiflora
Portlandia grandiflora
Clasping-leaved Pondweed
Potamogeton perfoliatus
Potato
Solanum tuberosum
Potentilla gelida
Potentilla gelida
Prickly-pear
Opuntia camanchica
Pride of India
Melia azedarach
Red Dwarf Primrose
Oenothera acaulis
Glaucus Evening Primrose
Oenothera glauca

Psathyrotes annua
Psathyrotes annua
Psoralea
Psoralea lupinellus
Narrow-leaved Puccoon
Lithospermum angustifolium
Quassia
Quassia amara
Queen of the Prairie
Spiraea lobata
Garden Radish
Raphanus sativus
Raspberry
Rubus deliciosus
Purple-flowering Raspberry
Rubus odoratus
Rattle-weed
Astragalus leucopsis
Red-bud
Cercis canadensis
Red Mallow
Sphaeralcea cisplanata
Rhodora
Rhododendron rhodora
Rhododendron praecox
Rhododendron praecox
Rhododendron vaseyi
Rhododendron vaseyi
Rice
Oryza sativa
Romneya coulteri
Romneya coulteri
Rose Acacia
Robinia hispida
Rose Apple
Eugenia brasiliensis
Rose Apple
Eugenia jambos
Rose Bay
Rhododendron maximum
Swamp Rose-Mallow
Hibiscus moscheheutos
Wild Rose
Rosa gymnocarpa
Wood's Rose
Rosa woodsii
Ruellia
Ruellia strepens
Rue Anemone
Anemonella thalictroides
Bog Rush Bayonet Rush
Juncus militaris
Narrow-leaved Sabbatia
Sabbatia brachiata
Prairie Sabbatia
Sabbatia campestris
Sage
Salvia carduacea
Salix cinerea
Salix cinerea
Salix cordata
Salix cordata
Saltwort
Salsola kali
Sanchezia nobilis
Sanchezia nobilis
Sand-box Tree
Hura crepitans
Sand Myrtle
Leiophyllum buxifolium
Golden Saxifrage
Chrysosplenium alternifolium
Saxifrage trifurcata
Saxifrage trifurcata
Saxifraga umbrosa
Saxifraga umbrosa
Scarlet Sage
Salvia coccinea
Scolopendrium vulgare
Scolopendrium vulgare
Southern glaucous Sedge
Carex verrucosa
Wild Senna
Cassia marilandica
Sensitive-plant
Mimosa pudica
Sheep Laurel
Kalmia angustifolia

Shin-leaf
Pyrola elliptica
Shooting Star
Dodecatheon meadia
Shortia galacifolia
Shortia galacifolia
Sweet-scented Shrub
Calycanthus occidentalis
Shrubby St. John's Wort
Hypericum prolificum
Sida acuta
Sida acuta
Sidalcea malvaeflora
Sidalcea malvaeflora
Silene laciniata
Silene laciniata
Silver-berry
Elaeagnus argentea
Sisyrinchium
Sisyrinchium bellum
Downy Skullcap
Scutellaria canescens
Resinous Skullcap
Scutellaria resinosa
Slipperwort
Calceolaria scabiosoefolia
Snake-mouth
Pogonia ophioglossoides
Snake-root
Ascarum canadense
Snapdragon
Antirrhinum coulterianum
Sneeze-weed
Helenium autumnale
Snow-drop Tree
Halesia tetraptera
Snowball
Symphoricarpas racemosus
Soapwort
Saponaria officinalis
Large-flowered Sobralia
Sobralia macrantha
False Solomon's Seal
Smilacina stellata
Smooth Solomon's Seal
Polygonatum giganteum
Wood Sorrel
Oxalis acetosella
Deppe's Wood Sorrel
Oxalis deppei
Sphaeralcea acerifolia
Sphaeralcea acerifolia
Zigzag Spiderwort
Tradescantia virginiana
False Spikenard
Smilacina racemosa
Spike-grass
Uniola latifolia
Roseate Spiderwort
Tradescantia rosea
White-margined Spurge
Euphorbia marginata
Rocky Mountain Spurge
Euphorbia montana
Flowering Spurge
Euphorbia corollata
Spring-beauty
Montia perfoliata
Squirrel-tail Grass
Hordeum jubotum
Stachys bullata
Stachys bullata
Stanhopea oculata
Stanhopea oculata
Stanhopea insignis
Stanhopea insignis
Ward's Stanhopea
Stanhopea wardii
Star-of-Bethlehem
Ornithogalum umbellatum
Star-grass
Hypoxis erecta
Star-grass
Aletris farinosa
Starwort
Arenaria groenlandica
Yellow Starwort
Inula helenium

Statice limonium
Statice limonium
Fringed Steironema
Steironema ciliatum
Great St. John's-wort
Hypericum ascyron
Stephanomeria pentachaeta
Stephanomeria pentachaeta
Stokesia cyanea
Stokesia cyanea
Stonecrop
Sedum stoloniferum
Barren Strawberry
Waldsteinia fragarioides
Streptanthus heterophyllus
Streptanthus heterophyllus
Streptosolen jamesonii
Streptosolen jamesonii
Ovate-leaved Styphonia
Rhus ovata
Smooth Sumach
Rhus glabra
Thread-leaved Sun-dew
Drosera filiformis
Pale-leaved Wood Sunflower
Helianthus strumosus
Sun-plant
Portulaca grandiflora
Swamp Lily
Helonias bullata
Sweet Fern
Myrica asplenifolia
Synthyris plantaginea
Synthyris plantaginea
Tabernaemontana crassa
Tabernaemontana crassa
Tea-plant
Thea sinensis
Thesium alpinum
Thesium alpinum
Prairie thermopsis
Thermopsis rhombifolia
Thorn Apple
Datura meteloides
Thunbergia fragrans
Thunbergia fragrans
Thyme
Elodea canadensis
Virginia Thyme
Pycnanthemum lanceolatum
Thyrse Flower
Thyrsacanthus rutilans
Tibouchina semidecandra
Tibouchina semidecandra
Tickseed
Coreopsis major
Tick-Trefoil
Desmodium canadense
Peacock Tiger Flower
Tigridia pavonia
American Star Thistle
Centaurea americana
Tobacco
Nicotiana tabacum
Glaucous-leaved Tobacco
Nicotiana glauca
Wild Tobacco
Nicotiana rustica
Tofieldia pubens
Tofieldia pubens
Shrubby Trefoil
Ptelea trifoliata
Tribulus cistoides
Tribulus cistoides
Red Trillium
Trillium erectum
Triteleia uniflora
Triteleia uniflora
Trumpet Creeper
Tecoma radicans
Trumpet-leaf
Sarracenia flava
Thimble-weed
Anemone virginiana
Tulip Tree
Liriodendron tulipifera
Tynx Flower
Stanhopea tigrina

Umbellate abronia
Abronia umbellata
Umbrella-tree
Magnolia umbrella
Unicorn Plant
Martynia proboscidea
Vegetable Sponge
Luffa cylindrica
Venus' Looking-glass
Specularia perfoliata
Verbena angustifolia
Verbena angustifolia
Verbena
Verbena venosa
Veriesea splendens
Vriesea splendens
Bird-foot Violet
Viola pedata
Common Blue Violet
Viola cucullata
Dog's-tooth Violet
Erythronium grandiflorum
Virgin's Bower
Clematis virginiana
White Dog's-tooth Violet
Erythronium albidum
Viola sarmentosa
Viola sarmentosa
Wake Robin
Trillium grandiflorum
Ill-scented Wake Robin
Trillium erectum
Walking-leaf
Camptosorus rhizophyllus
Western Wall Flower
Erysimum asperum
Water-Milfoil
Myriophyllum heterophyllum
Water-leaf
Phacelia fimbriata
Blue-leaved Water-leaf
Hydrophyllum canadense
Water Lily
Nymphaea reniformis
Water Lily
Nymphaea odorata
Widow's Cross
Sedum pulchellum
Whitlavia
Phacelia whitlavia
Desert Willow
Chilopsis saligna
Glaucous Willow
Salix discolor
Prairie Willow
Salix humilis
Virginia Willow
Itea virginica
Wintergreen
Gaultheria procumbens
Wind-flower
Anemone nemorosa
Witch Hazel
Hamamelis virginiana
Woodbine
Ampelopsis quinquefolia
Wood-Lily
Lilium philadelphicum
Wood-rush
Luzula vernalis
Yellow-eyed grass
Xyris caroliniana
Yedra morada
Cobaea scandens
Shrub Yellow-root
Zanthorhiza apiifolia
Common Yew
Taxus canadensis
Ynga
Inga vera
Yucca filamentosa
Yucca filamentosa
Zinnia
Zinnia elegans
Zygopetalum crinitum
Zygopetalum crinitum
Zygadenus glaberrimus
Zygadenus glaberrimus

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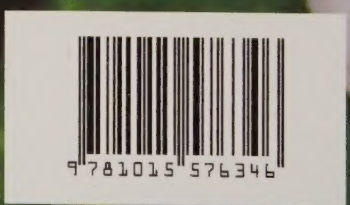

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